What is Claimed is:

[c1] A method of determining a location of an I_{DDQ} defect within an area of an integrated circuit having a substrate and a plurality of terminals arranged on a surface of said substrate, said area provided with and bounded by corresponding ones of said plurality of terminals, the method comprising the steps of:
activating an I_{DDQ} defect to generate I_{DDQ} defect current within said integrated circuit;
measuring amounts of said I_{DDQ} defect current at said corresponding terminals bounding said area; and
determining the location of the I_{DDQ} defect based on said amounts of said I_{DDQ} defect current measured at said corresponding terminals.

[c2] The method of claim 1, wherein the determining step further comprising the steps of:
dividing said area into a plurality of subsections, each subsection provided with a corresponding one of said terminals bounding said area; and
determining which subsection includes said I_{DDQ} defect based on said amounts of said I_{DDQ} defect current measured at said corresponding terminals.

[c3] The method of claim 2, further comprising steps of:
selecting one of said subsections determined to include said I_{DDQ} defect;
dividing said selected subsection into a plurality of sub-subsections; and
determining which sub-subsection includes said I_{DDQ} defect based on a ratio between an amount of I_{DDQ} defect current forwarded toward one of said terminals provided for said selected subsection and an amount of a sum of said I_{DDQ} defect current measured at said terminals bounding said area.

[c4] The method of claim 3, wherein said plurality of subsections are arranged in a matrix of X rows and Y columns within said area, and said plurality of sub-sections are arranged in a matrix of M rows and N columns, wherein said X, Y, M and N are natural numbers.

[c5] The method of claim 4, wherein said step of determining which sub-section includes said I_{DDQ} defect comprising the steps of:
determining which row of said selected subsection includes said I_{DDQ} defect based on a ratio between (a) an amount of a sum of said I_{DDQ} defect current measured at said terminal provided for said selected subsection and at a first neighboring terminal provided for one of said subsections arranged on a same row with said selected subsection and (b) said amount of said sum of said I_{DDQ} defect current measured at said terminals bounding said selected area; and
determining which column of said selected subsection includes said I_{DDQ} defect based on a ratio between (a) an amount of a sum of said I_{DDQ} defect current measured at said terminal provided for said selected subsection and at a second neighboring terminal provided for one of said subsections arranged on a same column with said selected subsection and (b) said amount of said sum of said I_{DDQ} defect current measured at said terminals bounding said selected area.

[c6] A method for testing an integrated circuit substrate having a plurality of terminals on a surface thereof, the method comprising the steps of:
dividing said surface into a plurality of areas;
activating an I_{DDQ} defect to generate I_{DDQ} defect current within said integrated circuit; and
measuring an amount of said I_{DDQ} defect current generated within each area.

[c7] The method of claim 6, wherein each area has at least one terminal corresponding thereto.

[c8] The method of claim 6, further comprising the step of determining whether each area includes said I_{DDQ} defect based on said amount of said I_{DDQ} defect current measured at said at least one terminal.

[c9] The method of claim 8, wherein said determining step includes the step of comparing the I_{DDQ} defect current measured at each area with a preselected value.

[c10] The method of claim 8, further comprising the step of determining a location of said I_{DDQ} defect within said integrated circuit substrate.

[c11] The method of claim 10, wherein said step of determining the location of said I_{DDQ} defect comprises the steps of:
selecting one of said areas determined to include said I_{DDQ} defect;
dividing said selected area into a plurality of subsections, each subsection provided with a corresponding one of said terminals bounding said selected area; and
determining which subsection includes said I_{DDQ} defect based on said amount of the I_{DDQ} defect current measured at said terminals bounding said selected area.

[c12] The method of claim 11, further comprising the steps of:
selecting one of said subsections determined to include said I_{DDQ} defect;
dividing said selected subsection into a plurality of sub-subsections; and
determining which sub-subsection includes said I_{DDQ} defect based on the ratio between (a) an amount of said I_{DDQ} defect current forwarded to said terminal provided for said selected subsection and (b) an amount of a sum of said I_{DDQ} defect current measured at said terminals bounding said selected area.

[c13] The method of claim 12, wherein said plurality of subsections are arranged in a matrix of X rows and Y columns within said selected area, and said plurality of sub-subsections are arranged in a matrix of M rows and N columns within said selected subsection, wherein X, Y, M and N are natural numbers.

[c14] The method of claim 13, wherein said step of determining which sub-subsection includes said I_{DDQ} defect comprises the steps of:
determining which row of said selected subsection includes said I_{DDQ} defect based on a ratio between (a) an amount of a sum of said I_{DDQ} defect current measured at said terminal provided for said selected subsection and at a first neighboring terminal provided for one of said subsections arranged on a same row with said selected subsection and (b) said amount of said sum of said I_{DDQ} defect current measured at said terminals bounding said selected area; and
determining which column of said selected subsection includes said I_{DDQ} defect based on a ratio between (a) an amount of a sum of said I_{DDQ} defect current measured at said terminal provided for said selected subsection and at a second neighboring terminal provided for one of said subsections arranged on a same column with said selected subsection and (b) said amount of said sum of said I_{DDQ} defect current measured at said terminals bounding said selected area.

[c15] A method for testing an integrated circuit substrate having a plurality of terminals on a surface thereof, the method comprising the steps of:
dividing said surface into a plurality of areas, each area provided with at least one of said plurality of terminals;
activating an I_{DDQ} defect to generate I_{DDQ} defect current within said integrated circuit; and measuring an amount of said I_{DDQ} defect current generated within each area;
creating an I_{DDQ} current map of said integrated device based on said amounts of said I_{DDQ} defect current measured at said plurality of

terminals;
determining whether each area includes said I_{DDQ} defect based on said I_{DDQ} current map; and
determining a location of said I_{DDQ} defect within said integrated circuit substrate based on said I_{DDQ} current map.

[c16] The method of claim 15, further comprising the step of isolating said I_{DDQ} defect within said integrated circuit substrate.

[c17] The method of claim 15, wherein said testing method is performed on a plurality of integrated circuit substrates to create a plurality of I_{DDQ} current maps.

[c18] The method of claim 17, further comprising step of determining an I_{DDQ} defect candidate area among said plurality of areas based on said plurality of I_{DDQ} current maps.

[c19] A method for diagnosing a location of an I_{DDQ} defect in an integrated circuit substrate having a plurality of terminals on a surface thereof, the method comprising the steps of:
dividing said surface into a plurality of areas, each area being provided with at least one of said plurality of terminals;
applying a plurality of test patterns to said integrated circuit substrate, each test pattern placing said integrated circuit into a different electrical state;
measuring an amount of current generated in each area of said integrated circuit substrate during each test pattern applied thereto;
determining which of said plurality of test patterns activate the I_{DDQ} defect and which of said plurality do not activate the I_{DDQ} defect based on the measured amount of the current generated in each area; and
using the determination result for said test patterns as data input to a diagnostic tool capable of modeling various I_{DDQ} defects and comparing a predicted activation behavior to said determination results.

[c20] An apparatus for testing an integrated circuit substrate, said integrated circuit being divided into a plurality of areas, comprising:
an activation unit forming electrical contact with said integrated circuit substrate to activate an I_{DDQ} defect to generate I_{DDQ} defect current within said integrated circuit substrate;
a measurement unit forming electrical contact with said integrated circuit to measure an amount of said I_{DDQ} defect current generated within each area; and
a control unit connected to said activation unit and said measurement unit and determining whether each area includes said I_{DDQ} defect based on the amounts of said I_{DDQ} defect current measured by said measurement unit.

[c21] The apparatus for determining a location of an I_{DDQ} defect in an area of an integrated circuit substrate having a plurality of terminals on a surface thereof, said area divided into a plurality of subsections, each subsection provided with at least one of said terminals, said apparatus comprising:
an activation unit forming electrical contact with said integrated circuit substrate for activating the I_{DDQ} defect to generate an I_{DDQ} defect current on said area;
a measurement unit forming electrical contact with said plurality of terminals to measure amounts of said I_{DDQ} defect current at said plurality of terminals; and
a control unit connected to said activation unit and said measurement unit and determining which subsection includes said I_{DDQ} defect based on said amounts of I_{DDQ} defect current at said plurality of terminals measured by said measurement unit.

[c22] The apparatus of claim 21, wherein said control unit further determines which sub-subsection includes said I_{DDQ} defect based on said amounts of I_{DDQ} defect current measured at said plurality of terminals, said sub-subsection being one of a plurality of sub-subsections formed by dividing

the subsection determined to include said I_{DDQ} defect.

[c23] The apparatus of claim 22, wherein said control unit determines which sub-subsection includes said I defect based on a ratio between (a) an amount of I_{DDQ} defect current forwarded toward one of said terminals provided for said subsection determined to include said I_{DDQ} defect and (b) an amount of a sum of said I_{DDQ} defect current measured at said plurality of terminals provided to said area.

[c24] The apparatus of claim 23, wherein said area is divided by said apparatus into said plurality of subsections and said plurality of sub-subsections such that said subsections are arranged in a matrix of X rows and Y columns within said area and said sub-subsections are arranged in a matrix of M rows and N columns with said subsection, wherein said X, Y, M and N are natural numbers.

[c25] The apparatus of claim 24, wherein said control unit further determines: (a) which row of said subsection determined to include said I_{DDQ} defect includes said I_{DDQ} defect based on a ratio between (i) an amount of a sum of said I_{DDQ} defect current measured at said terminal provided for said subsection determined to include said I_{DDQ} defect and at a first neighboring terminal provided for one of said subsections arranged on a same row with said subsection determined to include said I_{DDQ} defect and (ii) said amount of said sum of said I_{DDQ} defect current measured at said terminals provided for said area; and (b) which column of said subsection determined to include said I_{DDQ} defect based on a ratio between (i) an amount of a sum of said I_{DDQ} defect current measured at said terminal provided for said subsection determined to include said I_{DDQ} defect and at a second neighboring terminals provided for one of said subsections arranged on a same column with said subsection determined to include said I_{DDQ} defect and (ii) said amount of said sum of said I_{DDQ} defect current measured at said terminals provided for said area.